

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the automatic label pasting device which sticks a label on the product of two or more kinds conveyed by conveyor automatically according to the kind.

[0002]

[Description of the Prior Art] Into the tire conveyed through the last manufacturing process in the production line of a tire for example, the tendency of limited production with a wide variety is strong, the thing of the various sorts from which size, variety, etc. differ is intermingled. This was classified and accumulated for every kind and it has taken out to the predetermined storage place, respectively.

[0003] At this time, the label for displaying that variety, size, etc. as a product is stuck on each tire. However, it was difficult for this label to correspond with a commercial automatic label affixing machine, in order to various-sorts-size according to a tire, and conventionally, that pasting had become the hindrance of automation of said production line while that it cannot but depend on a help etc. required many time and labors.

[0004] Then, though this invention is [that device structure is simply small and] cheap, The label according to the kind is chosen, the automatic attachment of it can be carried out, and it aims at offer of the automatic label pasting device which can be adopted suitably for attachment of the product label especially in a tire production line for two or more kinds of products conveyed by conveyor.

[0005]

[Means for Solving the Problem] In order to attain said purpose, this invention is characterized by that an automatic label pasting device which sticks a label on a product of two or more kinds by which an invention of this application claim 1 is conveyed by conveyor automatically according to the kind comprises:

An identification device which identifies a kind of said product.

Two or more label affixing machines which equipped with a label for every kind of said product while having been arranged along with a transportation direction along with said conveyor. While equipping an attachment position which sticks, wears, is carried out in contact with a product in which a label the head of was pulled out is conveyed, and deals in a label affixing machine according to a kind of product from a position in readiness with a position substitute means which carries out a position substitute based on a discriminated result by said identification device, A roll support means which pivots a roll body around which said label

affixing machine winds a band-like label paper which arranged two or more labels in a longitudinal direction, and was stuck on a release paper enabling free rewinding.

A peeling base which exfoliates a tip part of a label from a release paper when a label paper rewound from said roll body turns to an acute angle again, and by rewinding a label paper intermittently from said roll body, A search means by which a label can be held in the state of search which a tip part which exfoliated projected from a peeling base, and a recovery means which has a recovery axis from which release papers by which it was intermittently rewound by said search means are wound and collected.

[0006]

[Embodiment of the Invention]Hereafter, one gestalt of operation of this invention is explained with the example of a graphic display. The automatic label pasting device 1 of this invention was adopted as the tire production line, and drawing 1 has illustrated the case where the label L according to the kind is automatically stuck on two or more kinds (n kind) of tires T conveyed from the conveyor 2 through the last manufacturing process.

[0007]The automatic label pasting device 1 is provided with the following in drawing 1.

- The identification device 3 which identifies the kind of tire T (product) conveyed by aforementioned conveyor 2.
- The label affixing machine 4 of n stand which equipped with the label L for every kind of tire T while having been arranged along with the transportation direction F along with the aforementioned conveyor 2.
- A position substitute means 5 to carry out the position substitute of the label affixing machine 4 according to the kind of tire T based on the discriminated result by the aforementioned identification device 3 from the position in readiness Y1 to the label attachment position Y2.

[0008]In this example, the case where eight kinds (n= 8) of tires T are conveyed at random is illustrated on said conveyor 2, therefore the automatic label pasting device 1 is allocating in it a total of eight sets of the label affixing machines 4 which equipped with eight kinds of labels [one kind of] L at a time along with said conveyor 2 at the single tier.

[0009]As said label L, as shown in drawing 6, it is in the state of the roll body 9 which wound around the release paper 8 the band-like label paper 9A which put in order and stuck several Oshi's label L on the longitudinal direction, and the label affixing machine 4 is equipped.

[0010]Next, in this example, said identification device 3 is what is called a bar code reader that reads the identification tag 6 which consists of a bar code currently beforehand stuck on the lateral surface (usually bead lateral surface) of said tire T, and identifies the kind of said tire T by this. The identification tag 6 which generally displayed various information for managing manufacture, shipment, use, etc. on the green tire before vulcanization by the bar code is

stuck on the bead lateral surface, and said discernment is performed in this example using this.

[0011]Said label affixing machine 4 is provided with the following.

The roll support means 10 which pivots the label paper 9A from the - aforementioned roll body 9 enabling free rewinding as shown in drawing 2 - 5.

- the peeling base 11 which exfoliates tip part LA of the label L from the release paper 8 when said rewound label paper turns to an acute angle again.

- A search means 12 by which the label L can be held in the state of [Z] search which said tip part LA which exfoliated by rewinding the label paper 9A intermittently from the aforementioned roll body 9 projected from the peeling base 11.

- The recovery means 14 which has the recovery axis 13 which winds and collects the release papers 8 rewound by the aforementioned search means 12.

[0012]In this example, said label affixing machine 4 was provided with the level pedestal 15 supported pivotably by the circumference of the axial center J vertical to a buck (not shown) enabling free tilting, and has attached said roll support means 10, the peeling base 11, the search means 12, and the recovery means 14 to this pedestal 15, respectively.

[0013]In detail, as shown in drawing 2, said roll support means 10 has the pivot 16 which inserts in and holds the branch pipe part 9B of said roll body 9, and is setting up this pivot 16 to said pedestal 15 by this example in said axial center J and the concentric position.

[0014]As said peeling base 11 makes the rectangular plate shape which rises on the pedestal 15 and shows it notionally to drawing 3, When the label paper 9A sent along the one side face of the peeling base 11 is turned up by the acute angle and is again suitable with the exfoliation edge 11E formed at peeling base 11 tip, without being again suitable and being able to do, the label L exfoliates from the release paper 8, and is sent out to the arrow direction P (direction along the one side face of the peeling base 11).

[0015]It is required that adhesive power should be strongly set up rather than the conventional thing with said label L here for attachment into a tire, therefore the angle alpha of said exfoliation edge 11E should be conventionally acute-angle-ized for the exfoliation from the release paper 8. However, by this example, since acute-angle-ization of this exfoliation edge causes fracture damage to the release paper 8, while it reduces the rewinding speed by the search means 12, it is letting it slide with constant torque with the torque limitation machine 21 of the recovery means 14 mentioned later, and rolling round, and has prevented the fracture damage to the release paper 8.

[0016]Said search means 12 is provided with the following.

The driving roller 17 for label paper rewinding.

The pressing roller 18 which presses the release paper 8 which exfoliated in this driving roller

17.

Each rollers 17 and 18 are rubber rollers, and said driving roller 17 is connected with the drive motor M1 of the low speed for search via a drive means of communication which has a belt pulley, a belt, etc., for example.the press contact state U1 which said pressing roller 18 is supported by the rod end of the attitude implements 20, such as a cylinder in which forward/backward moving is free, and presses said release paper 8 to the driving roller 17 and the alienation which separates from the driving roller 17 -- it moves between the states U2. [0017]therefore -- in said search means 12, rotation of the driving roller 17 is told in said press contact state U1, and the label paper 9A can be rolled back from the roll body 9 -- reverse -- alienation -- said rewinding can be stopped in the state U2. namely, -- it can roll back intermittently -- and alienation -- when it is in the state U2, tip part LA which exfoliated can stop in the state of [Z] search which projects from the peeling base 11.

[0018]Said recovery means 14 has the recovery axis 13 which winds and collects said rewound release papers 8, and by this example, this recovery axis 13 is rolled round via the torque limitation machine 21, and is connected with the motor M2 of business.

[0019]As shown in drawing 4, said recovery axis 13 is pivoted by said pedestal 15 via the bearing 22, and the numerals 23 in ****, The belt 32 from said motor M2 is looped around, and the fixing bracket of the ring shape fixed to the recovery axis 13 and the numerals 24 show the belt pulley loosely inserted in the recovery axis 13 so that a skid is possible.

[0020]Said torque limitation machine 21 is formed including the pressing means 25 which presses said belt pulley 24 to the fixing bracket 23, and the file plate 26 arranged between said belt pulley 24 and the fixing bracket 23. The pressing means 25 had the spring piece 29 of the shape of a coil spring allotted to the lower end part of said recovery axis 13 via the spacer 28 between the fixed thrust adjustment metal fittings 27 and the belt pulley 24, and has arranged the file plate 26 also between the spacer 28 and the belt pulley 24 in this example.

[0021]Therefore, when said torque limitation machine 21 can transmit rotation of the belt pulley 24 driven by the motor M2 to the recovery axis 13 via the file plate 26 and its load of the recovery axis 13 is large, namely, said pressing roller 18 -- alienation -- when it is in the search state Z which will be in the state U2, the file plate 26 is slippery, and it cannot rotate, but the recovery axis 13 is stabilized, and can maintain said search state Z. the release paper 8 which the recovery axis 13 rotates and is rewound in the case of rewinding in which said pressing roller 18 will be in the press contact state U1 when the load of the recovery axis 13 is small -- ***** -- it is recoverable one by one without things.

[0022]Next, by this example, said position substitute means 5 makes the pedestal 15 of said label affixing machine 4 tilt horizontally by the circumference of said axial center J, for example, is provided with the drive implements 30, such as a cylinder, so that it may **** in drawing 5. And the position substitute of the label affixing machine 4 can be carried out at two

positions of the attachment position Y2 in which it is stuck, worn and carried out by the operation of this drive implement 30 in contact with the tire T with which tip part LA of said label L the head of was pulled out is conveyed, and deals by it, and the position in readiness Y1 which does not contact the tire T.

[0023]In this example, when said tip part LA the head of was pulled out contacts the tire T, the backup roller 31 which forces this tip part LA on the tire T in response to the back of said tip part LA is provided in the label affixing machine 4, without this tip part LA escaping so that it may be stuck firmly. Although it generates with the operating air pressure to said drive implement 30, said forcing power has controlled said forcing power, i.e., operating air pressure, with the precision reducing valve so that it pushes away, and the tire T passes the label affixing machine 4 and is made.

[0024]Thus, since said automatic label pasting device 1 is what sticks this label by using conveyance of the tire T and contacting the tire under this conveyance in the label L of a search state Z, Though control of label delivery can be simplified and device structure is made simply small and cheap, the label L according to the kind is chosen as two or more kinds of tires T conveyed, and automatic attachment can be carried out. Since it is not necessary to stop conveyance of the tire T, it can stick promptly efficiently.

[0025]As mentioned above, although especially the desirable embodiment of this invention was explained in full detail, without being limited to the embodiment of a graphic display, it changes into various modes, and this invention is carried out and made to them, and can be adopted as label attachment for various products other than a tire.

[0026]

[Effect of the Invention]Since it constitutes like the above statement, though device structure presupposes that it is simply small and cheap, this invention chooses the label according to the kind as two or more kinds of products conveyed by conveyor, and can carry out automatic attachment efficiently and promptly.